

WHAT IS CLAIMED IS:

1. A memory cell comprising:  
a semiconductor substrate having a first region and a second region of one  
5 conduction type and a third region therebetween of an opposite conduction type; and  
a gate insulating layer formed over said substrate, the gate insulating layer  
having a first thickness formed over said first region and said second region, and a second  
thickness formed over said third region.

10 2. A memory cell as in claim 1, wherein said first thickness is greater than  
said second thickness.

3. A memory cell as in claim 1, wherein said first thickness is between  
about 20 and 30 nm and wherein said second thickness is between about 8 and 11 nm.

5 4. A memory cell as in claim 1, wherein the electric field in a region of  
overlap between said insulating layer and said first and said second regions is between  
about 4 Mv/cm and 6 Mv/cm.

20 5. A memory cell as in claim 1, wherein the electric field in a region of  
overlap between said insulating layer and said third region is between about 8 Mv/cm  
and 11 Mv/cm.

25 6. A memory cell as in claim 1, wherein said gate insulating layer  
comprises SiO<sub>2</sub>.

7. A memory cell as in claim 1, further comprising a polysilicon  
gate electrode.

8. A memory cell as in claim 1, further comprising a control gate.

9. A memory cell as in claim 1, further comprising an ONO stack.

10. A method for fabricating a memory cell, the method comprising:  
providing a semiconductor substrate having a first region and a second  
region of one conduction type and a third region therebetween of an opposite  
conduction type;  
forming a first portion of a gate insulating layer over said first region and  
said second region; and  
forming a second portion of said gate insulating layer over said  
third region,  
said first portion having a first thickness said second portion having a  
second thickness.

11. A method as in claim 10, wherein said first thickness is greater than said  
second thickness.

12. A method as in claim 10, wherein said first thickness is between about 20  
and 30 nm and wherein said second thickness is between about 8 and 11 nm.